

In re Patent Application of:  
**VIGIL ET AL.**  
Serial No. **09/840,481**  
Filing Date: **April 23, 2001**

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**REMARKS**

The Applicants would like to thank the Examiner for the thorough examination of the present application. In addition, the Applicants would also like to thank the Examiner for the courtesies extended during the Examiner's interview on February 28, 2005.

The Examiner rejected independent Claims 25, 31, 35 and 42 over the Grabb et al. patent in view of the Twitchell et al. patent. The independent claims have been amended to more clearly define that a training sequence is multiplexed with the DTV data, and the training sequence is compliant with the ATSC DTV standard.

As discussed during the interview, the training sequence is embedded within the multiplexed DTV data stream - as best illustrated in FIG. 13 (synch packets S) and in FIG. 15 (training sequence packet every 6th frame). To be ATSC DTV compliant, the training sequence is a component of the RF waveform being transmitted and has periodic correlation properties. These periodic correlation properties in the training sequence are used to mitigate multipath of the received DTV signal.

In FIG. 1 of the Grabb et al. patent, a wideband overlay sequence generator **103** provides an overlay signal (i.e., reference data) that is added to the DTV signal to be transmitted. The overlay signal allows a receiver to estimate the transmission channel and mitigate changing multipath conditions. As correctly noted by the Examiner, the overlay signal in Grabb et al. is added after the DTV data has been modulated. In addition, the overlay signal is not ATSC DTV compliant and is not embedded within the DTV data stream.

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There is a difference between being compliant and being non-interfering. In Grabb et al., the overlay signal is simply added to the DTV signal in a non-interfering fashion.

The Examiner cited the Twitchell et al. patent as disclosing in FIG. 1 a channel coder **120** modifying a DTV signal prior to being modulated by modulator **122**. As illustrated in FIG. 1, ancillary signals **112** and control signals **114** are multiplexed along with the DTV data. However, the ancillary signals **112** and control signals **114** do not form a training sequence for providing correlation peaks to be used by a receiver to mitigate multipath of the received DTV signal. Instead, the signals **112**, **114** include control data, conditional access control data and data associated with the audio and video services, such as closed captioning. This data has nothing to do with mitigating multipath in the received DTV signal.

The Examiner acknowledged during the interview that the Grabb et al. patent and the Twitchell et al. patent both fail to disclose a training sequence being multiplexed with the DTV data stream so that the training sequence is embedded therein. Consequently, the Grabb et al. patent and the Twitchell et al. patent both fail to disclose detecting correlation peaks in the received DTV signal based upon the multiplexed training sequence embedded therein, and using the detected correlation peaks to mitigate multipath in the received DTV signal.


In view of the amendments to the claims and the remarks provided herein, it is submitted that all the claims are patentable. Accordingly, a Notice of Allowance is requested in due course. Should any minor informalities need

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to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,

  
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MICHAEL W. TAYLOR  
Reg. No. 43,182  
Allen, Dyer, Doppelt, Milbrath  
& Gilchrist, P.A.  
255 S. Orange Avenue, Suite 1401  
Post Office Box 3791  
Orlando, Florida 32802  
407-841-2330